

Correction of Severely Rotated Maxillary Lateral Incisor in the Mixed Dentition: A Case Report

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Abstract: The aim of this case report was to introduce an alternative and economical approach for correction of a single tooth rotation using a removable appliance. A ten year old male patient reported to the Department of Pedodontics with a severely rotated left maxillary lateral incisor with generalised upper anterior spacing. A successful management of this case of 180° rotated maxillary left lateral incisor is described here.

Keywords: Central incisor, conservative approach, Mixed dentition, Severe rotated tooth.

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I. Introduction

Tooth rotation is considered subjectively as an evident mesiolingual or distobuccal intra alveolar displacement of tooth around its longitudinal axis.¹ Although the exact etiology of tooth rotation is relatively debatable, it is attributed to be a developmental phenomenon. The displacement of the dental follicle and alterations in path of tooth eruption lead to rotation of a tooth.² Correction of a rotated upper incisor in the mixed dentition could be achieved using a removable appliance with minimal force but, multiple and severe rotations would require a fixed appliance.³ When a fixed appliance is used to correct only some of the teeth in the mixed dentition, arch wire spans are longer, the wire is springier and large movements are easily possible. However, it may be difficult to use fixed appliances correctly during the mixed dentition since the available permanent teeth are grouped into anterior (incisor) and posterior (molar) segments. In addition, anchorage control becomes difficult as only the first molars serve as anchorage in the posterior segment of the arch.⁴ The aim of this case report was to introduce an alternative and economical approach for correction of a single tooth rotation using a removable appliance.

II. Case Report

A ten year old male patient reported to the Department of Pedodontics, Sree Anjaneya institute of dental sciences, Calicut with a chief complaint of an irregularly placed tooth in his upper front left tooth region with an unaesthetic appearance.(figA to figD) The familial, medical and dental history were noncontributory. The extraoral examination of the child revealed mild convex profile, and in frontal view he was mesoprosopic, had a symmetric face and competent lips at rest. Intraoral examination revealed a mixed dentition with a severely rotated left maxillary lateral incisor with generalised upper anterior spacing. Oral hygiene was fair. A written consent was taken from the parents to proceed with the treatment aimed at de-rotation of maxillary left lateral incisor.

Appliance design

An adams clasp with distal extension on maxillary right central incisor(11) was made on a removable acrylic plate and a J hook at the left end of palatal plate close to deciduous maxillary canine. Labial bonded buttons on rotated incisor engaged the distal extension and the lingual button engaged the j hook.(figE and figF) After 3 and half months of follow-up, desired result was achieved and bondable buttons were removed and

pericision/circumferential supracrestal fibrotomy was performed. At the end of the treatment, fixed palatal retainer was placed for 4 weeks to prevent relapse considering the age of the patient. (fig G to fig J)

III. Discussion

This case report deals with an unusual aspect of 180° rotation of the upper front tooth. The etiology of the rotation could not be identified as the patient did not have any orofacial deformities, which are the possible etiological factors for the presence of rotated teeth.⁵ Clinical examination of his parents and siblings did not show any malformed tooth.

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This appliance offers simple force system with easier dental plaque control and less critical patient cooperation. Considering the above-mentioned advantages and disadvantages of different techniques, the present case was treated by a simple and more conservative approach.

IV. Conclusion

During the mixed dentition period this present treatment offers a simplified and a cost effective treatment alternative employed for successful derotation of anterior tooth but, ideal case selection, patient's cooperation and compliance is mandatory for desired results.

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Fig A

Fig B



Fig C **Fig D**
Fig A to Fig D Intraoral examination before the treatment



Fig E **Fig F**
Removable appliance with modified Adam's clasp with distal extension and placement of bonded buttons and elastics



Fig G **Fig H**
Postoperative Picture(Fig G and Fig H)



Fig I Postrotation Pericision



Fig J Fixed Retainer